

MassDEP Anti-Dumping Hidden Video Initiative



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MassDEP Environmental Strike Force

Massachusetts Department
of
ENVIRONMENTAL PROTECTION



MassDEP Environmental Strike Force

- What is the Environmental Strike Force (ESF)?
 - Interagency task force since 1989
 - MassDEP, Attorney General's Office, Environmental Police
 - MassDEP Higher Level Enforcement
 - Investigate, collect evidence, build cases



MassDEP Hidden Video Initiative



- An effort to catch illegal dumpers in the act and prosecute them
- Started in Roxbury in May 2005 with Boston ISD
- Partner with municipal agencies to obtain equipment and provide technical, investigative, and legal support
- Focus on enforcement solutions



Results Thus Far

- Two Consent Orders from DEP: each with \$5,000 penalty with additional cleanup ordered in Lawrence
- Six \$1,000 tickets issued by City of Boston
- Several tickets issued by City of Lawrence
- Dozens of violations captured, not all identified by license plates





Lawrence: BEFORE



Lawrence: After DEP ACOP for \$5,000 penalty plus cleanup



2006/01/19



What Impact does dumping have?

- Public Health
- Resource/habitat alteration
- Property Values/Crime
- Economic: Who pays? Boston calculated \$180,000+ last year in tipping fees alone



Solid Waste

- Household trash: MSW, Banned items
 - Who: local residents, landlords
- Commercial trash: Construction & Demolition debris
 - Who: Construction contractors, Clean-out and disposal contractor



Solid Waste

- Statutes
 - Solid Waste Management Act (MGL c. 111, s.150A)
 - Creating a dumping ground (transporter, landowner)
 - Contracting for illegal disposal (generator)
 - Wetland Protection Act (MGL c.131, s. 40)
 - Alteration/filling of a jurisdictional area.





Hazardous Waste

- What: MA regulated Waste Oil or RCRA characteristic or listed (industrial processes, off-spec. commercial chemical products, acutely hazardous) wastes.
- Who: unlicensed haulers, small contractors, auto repair shops.



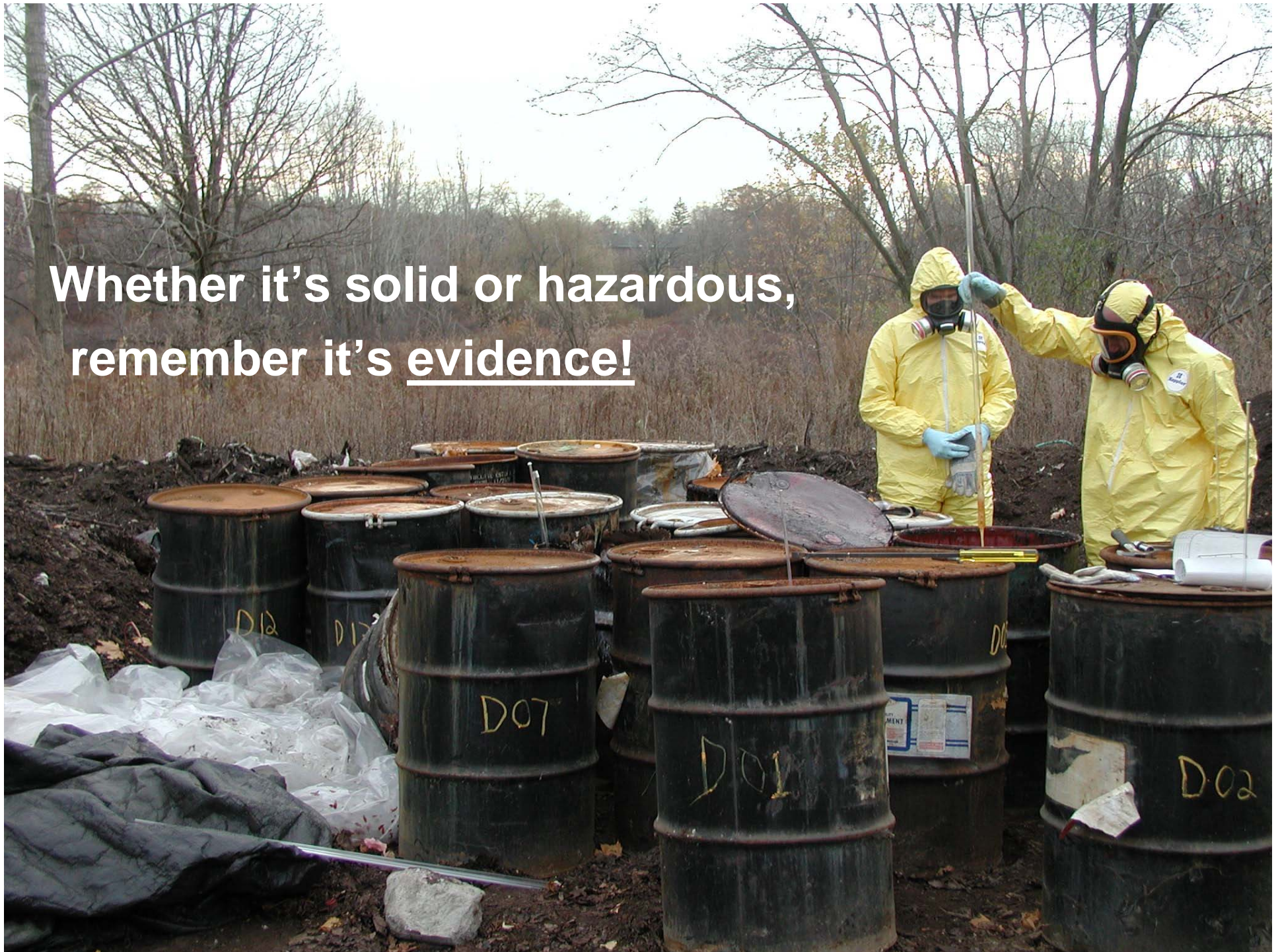
Hazardous Waste

- Statutes:
 - Hazardous Waste Management Act (MGL c. 21C)
 - Waste Site Clean-up Act (MGL c. 21E)
 - Clean Water Act (MGL c. 21, s. 26-53)

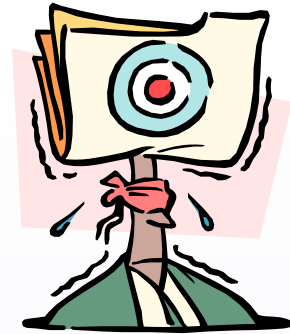




Whether it's solid or hazardous,
remember it's evidence!



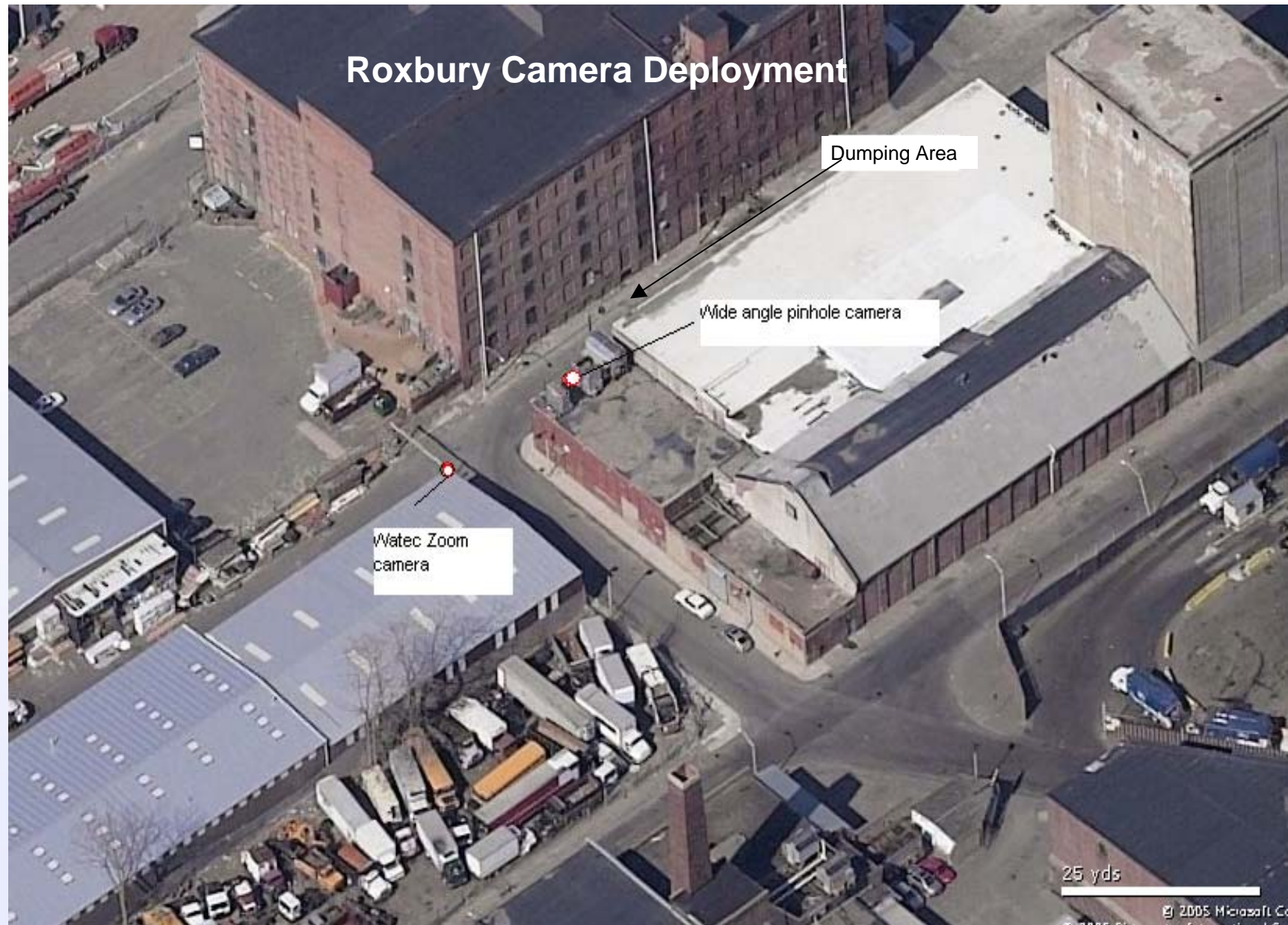
Site Selection Criteria



- Gather data on frequency/type from DPW
- Property research – is it public?
- Access points, can you trigger/identify dumpers?
- Cooperating business permission/power
- Spend some time at the site



Roxbury Camera Deployment



Video Equipment



- System: camera/lens, recorder, alarm triggers, wireless transmitters, evidence processing
- Can be as simple as a VCR and one camera, but at least two is recommended for positive identification
- Powered versus unpowered (12-volt) systems



Cameras



- Types: Bullet, cylinder, IR, network – should be covert & weatherproof. High defs are here but most need computer to record
- Size of imaging chip (CCD, 1/3" most common) but bigger is better (1/2", 2/3")
- Standard TV is grainy - 0.4 megapixel (that's why two cameras are needed)
- Should have C- or CS- mount lens ability
- Get at least 480 lines for color, 500+ lines for B&W cameras



Recorders



- Digital video recorder with hard drive means easy review, **long** record times (250 GB hard disk at 10 frames/sec = 6 whole days on endless loop)
- DVRs can multiplex (more than one camera recording at same time)
- Can also use compact flashcard recorders (e.g. Memocam) for remote sites via 12-volt battery





Lenses

- For wide view (1/3 inch) use about 4 - 8 mm, zoom (plates) use 20 – 75 mm
- Be prepared to spend as much or more as camera itself (\$150 to \$500)
- Use varifocal (versus fixed) for flexibility
- Use DC Autoiris over video iris for exposure control





Night Vision



- What makes a good photo makes a good video – lighting and exposure
- Lux Rating is key. B&W cams are better at night.
- 0.01 lux or less to effectively “see in the dark”
- Near Infrared light – 830 to 950 nm but know range of target





Alarm Triggers



- Tell recorder to activate to record “just the action” but should minimize false triggers
- Have two wires (N.O. or N.C.)
- Can be made wireless
- Types:infrared motion, beam break, seismic, video motion, magnetic, pressure hose



Installation Considerations

- Minimize personnel involved
- Have a cover story for busy areas (survey, electrical or DPW crew)
- Weatherproofing and safe wiring
- Check and recheck view – use test car
- Camouflage or hide in plain view (electrical box or common items)



DEP owns a Guardian Video Unit



For remote, unpowered sites



Video System Costs \$\$

- Basic DVR/(2)Cameras: about \$2,000 - \$3,000
- Accessories:adaptors, siamese cables,monitor,tools required:about \$500
- Internet-based (Wifi) HDTV systems (e.g. IQ eye, Covi)
Iqeye has built-in compact flash up to 8 GB (can be made battery powered)
- Pre-packaged 12-volt systems: (e.g. Homenet communications Flytrap, First Witness Guardian 2000) around \$10,000
- ESF piloting solid state system (about \$2,500 total using Memocam DVRs)





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Thank You

MassDEP ESF

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